

STATE OF MINNESOTA
ENVIRONMENTAL QUALITY BOARD

In the Matter of the Exemption
Application by Minnesota Power for a
345/230 kV High Voltage Transmission
Line Known as the Arrowhead Project

**MINNESOTA ENVIRONMENTAL
QUALITY BOARD'S FINDINGS OF
FACT, CONCLUSIONS, AND
ORDER GRANTING EXEMPTION**

**MEQB DOCKET NO.
MP-HVTL-EA-1-99**

The above-entitled matter came before the Minnesota Environmental Quality Board at a regular meeting on March 15, 2001, pursuant to an application by Minnesota Power for an Exemption from the Power Plant Siting Act for a High Voltage Transmission Line known as the Arrowhead Project.

STATEMENT OF ISSUE

Should Minnesota Power be granted an Exemption from the Power Plant Siting Act for a 345/230 kV High Voltage Transmission Line to be constructed in St. Louis County, Minnesota

Based upon all of the proceedings herein, the Minnesota Environmental Quality Board makes the following:

FINDINGS OF FACT

1. The Findings of Fact of the Administrative Law Judge in his report dated January 29, 2001, are adopted with the following amendments.
2. The second bullet of Finding No. 11 is amended to read and a new footnote 18A is added to read:

Adding four single-phase 345/230 kilovolt transformers to interface with the 345 kV line. These transformers step up the voltage from 230 kV to 345 kV. The approximate rating of these transformers is 800 MVA. [18A]

18A. Transcript at 1874.

3. The first sentence of Finding No. 15 is amended as follows, footnote 26 is amended as follows, and the remaining language is unchanged:

15. In all the segments, the 345 kV circuit will consist of two-wire bundled 1272 kcmil ACSR conductor for each of the three phases for a total of six.

Deleted: segments

Deleted: twelve.

Deleted: 2.

[26] MEQB EX. 1, at 10.

4. Finding No. 37 is amended to read:

37. MP will notify the DM&IR railroad when construction of the 345 kV HVTL and 115 kV power line will be affecting the railroad's trackage. Similar notification to the Minnesota Department of Transportation will occur when the construction crosses Interstate 35. MP will schedule its construction activities to minimize the effect on vehicular traffic.[88] There are no impacts on public services arising out of the Arrowhead Project.

Deleted: installation

Deleted: affect

5. Finding No. 38 and footnotes 91 and 92 are amended to read:

38. Electric and magnetic fields (EMF) arise from the flow of electricity and the voltage of a line. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors.[89] There are no state or federal standards for transmission line electric fields or magnetic fields.

38A. Electric fields are measured in units called kilovolts per meter (kV/meter). The MEQB has included permit conditions for other transmission lines specifying that maximum electric fields must not exceed 8 kV/meter.[90] The maximum anticipated electric field exposure for the MP transmission line, measured directly under the HVTL, is approximately 6.1 kV/meter.[91] At a distance of 100 feet of the centerline of the HVTL, the electric field strength nears zero. [92]

Deleted: 6.5

Deleted: Within

[91] MEQB Exhibit 17 at 4.

Deleted: ; DLV-1, Sheets 1-6.

[92] Id. at DLV -1, Sheets 1-6.

6. Finding No. 39 and footnote 94 are amended to read:

39. Magnetic fields are measured in milligauss (mG). Common electrical appliances produce magnetic fields while in operation, as do HVTLs. The Arrowhead Project will increase exposure to magnetic fields for persons living along the right of way above current levels.[93] The amount of the increase ranges from approximately 50 mG at the edge of the right of way to approximately 10 mG at the distance of the nearest home to the

Deleted: EMF is also

Deleted: EMF

Deleted: EMF

Deleted: s

Deleted: EMF

Deleted: is small, ranging

Arrowhead HVTL, which is approximately 160 feet. [94] These increased levels occur at the periods of peak flow and are present approximately 5% of the time. [95]

[94] By way of comparison, an electric stove emits a magnetic field of 21.6 mG at a distance of one foot. A person making a photocopy is exposed to a magnetic field of 31 mG. MP-17; DLV-6. The 160 feet figure for the distance to the nearest home is found at Tr. at 314.

Deleted: an EMF

Deleted: an EMF

7. Finding 48 is amended to change the last sentence to read:

The expansion of the existing right of way for that segment has no significant human or environmental impact.

8. Finding No. 49 is amended to read:

49. The other alteration to the right of way for the Arrowhead Project moves the 0.8 miles of the existing route to the eastern side of the DM&IR rail yard. The change is proposed at the request of the landowners along the existing route. The movement of the 0.8 mile length of right of way does not result in significant human or environmental impact. Removing the existing 0.8 mile segment of 115 kV power line from its existing location is a benefit to persons living in the eastern portion of Gary. The Arrowhead Project uses existing rights-of-way to minimize the impact of upgrading the existing 115 kV power line to a 345 kV HVTL.

Deleted: , the DM&IR railroad.

9. Finding 54 is amended to read:

54. The Arrowhead Project will not result in a significant impact on human health or the environment in Minnesota from the construction and operation of the proposed transmission line. ▼

Deleted: impose demands on air or water resources

Based on the foregoing Findings of Fact, the Minnesota Environmental Quality Board makes the following:

CONCLUSIONS

1. Any of the foregoing Findings more properly designated as Conclusions are hereby adopted as such.
2. The Minnesota Environmental Quality Board has jurisdiction over the subject matter of the hearing pursuant to Minn. Stat. § 116C.57.
3. All relevant substantive and procedural requirements of law and rule have been fulfilled in order to grant an application for exemption from the Power Plant Siting Act.
4. The proposed project, when constructed in accordance with the attached conditions, "will not create significant human or environmental impact" in any of the categories of impact examined under the terms of Minn. Rule 4400.1310.
5. The Applicant has demonstrated that the Arrowhead Project meets the standards for exemption from the Minnesota Power Plant Siting Act process in Minn. Stat. § 116C.57, subd. 5.

Based upon the foregoing Conclusions, the Minnesota Environmental Quality Board makes the following:

ORDER

The Minnesota Environmental Quality Board hereby grants an Exemption to Minnesota Power Company from the requirements of the Minnesota Power Plant Siting Act (Minn. Stat. Sections 116C.51 - .69) for the Arrowhead Project, consisting of construction of a 12 mile long 345 kV/115 kV and 345/230 kV High Voltage Transmission Line (for one segment operated at 115 kV) from the Arrowhead substation to the Wisconsin border, and a corresponding modification of the Arrowhead substation, subject to the following conditions:

1. Minnesota Power shall follow the existing right-of-way now occupied by Lines 22, 131, and 132, except for 0.8 miles of new right-of-way along the DM&IR rail yard and except for additional right-of-way width as described in the application.
2. Minnesota Power shall install the low-noise transformers identified in the application at the Arrowhead substation.
3. Minnesota Power shall limit clearing along the right-of-way to vegetation actually affecting the safe operation of the transmission line. The only new right-of-way clearing shall be the 0.8 mile segment along the rail yard and a 3.2 mile segment along

the Midway segment. No herbicides shall be used for clearance if the landowner objects to use of such methods.

4. Minnesota Power shall remove all construction debris from the right-of-way as soon as construction is completed. Minnesota Power shall implement reasonable measures to provide revegetation of low-growing plants along construction areas.

5. Minnesota Power shall implement measures to minimize erosion and to prevent silt from entering surface waters during construction by installing barriers and using set back zones as necessary. The company shall maintain existing trees along streams to be crossed by the line to prevent changes in water temperature.

6. Minnesota Power shall perform no instream work in the four trout streams to be crossed by the line during the time September 15 to April 30.

7. Minnesota Power shall avoid impacts to any wetlands to be crossed by the line by constructing structures in such areas during the winter months when the wetland areas are frozen. If construction or maintenance must be performed in such areas when the wetland is not frozen, Minnesota Power shall use mats to prevent damage.

8. Minnesota Power shall consult with landowners whose property is to be crossed by the line regarding placement of structures to minimize interference with agricultural operations.

9. Minnesota Power shall obtain all necessary permits from federal and state and local units of government before proceeding with construction.

10. Minnesota Power shall apply to the Minnesota Environmental Quality Board under section 116C.57 for authorization to make any changes in the Arrowhead substation that would allow Minnesota Power to increase the capability of the substation to transmit power over the transmission line beyond 800 MVA.

STATE OF MINNESOTA
ENVIRONMENTAL QUALITY BOARD

Dated: March 19, 2001

signed original on file
Gene Hugoson, Chair

**RESOLUTION OF THE
MINNESOTA ENVIRONMENTAL QUALITY BOARD
March 15, 2001**

Minnesota Power Company Arrowhead High Voltage Transmission Line Project

BE IT RESOLVED, that the MEQB approves and adopts the proposed Findings of Fact, Conclusions, and Order, as revised, granting an Exemption to Minnesota Power Company for the Arrowhead High Voltage Transmission Line; and

BE IT FURTHER RESOLVED that the Chair of the Board is authorized to sign the Findings of Fact, Conclusions, and Order.

Adopted on March 15, 2001, by the Minnesota Environmental Quality Board on a vote of 9-0.